AMENDMENTS TO THE CLAIMS

Claims 1-16 (Canceled)

Claim 17 (New) A refrigerating storage cabinet for refrigerating an inner atmosphere and including a refrigeration unit comprising a compressor and an evaporator, in which the refrigerating storage cabinet comprises:

a storing means for storing a cooling characteristic comprising a target physical amount as a function of operating time;

a physical amount sensor able to detect a physical amount, corresponding to the target physical amount, at predetermined intervals of operating time;

wherein the compressor comprises a plurality of performance levels;

an operation control means for controlling the compressor by selecting an appropriate one of the plurality of performance levels based upon a relationship between the physical amount and the target physical amount for a corresponding operating time.

Claim 18 (New) The refrigerating storage cabinet of claim 17, wherein:

the physical amount and the target physical amount are temperatures;

wherein the physical amount is the temperature of the inner atmosphere;

wherein the compressor is controlled by the operation control means in which the cooling characteristic is a pull down characteristic while the physical amount is in a temperature range from above a high temperature to near a set temperature;

wherein the high temperature is higher than the set temperature by more than a predetermined value.

Claim 19 (New) The refrigerating storage cabinet of claim 18, comprising:

an upper limit temperature that is higher by the predetermined value than a set temperature;

a lower limit temperature that is lower by the predetermined value than the set temperature;

a control-cooling zone between and including the upper limit temperature to the lower limit temperature;

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wherein when the physical amount is in the control-cooling zone, the cooling characteristic is a control-cooling characteristic;

wherein the compressor is controlled by the operation control means wherein the control characteristic is a control-cooling characteristic when the physical amount is in the control-cooling zone from the upper limit temperature to the lower limit temperature;

wherein when the physical amount reaches the lower limit temperature from a temperature higher than the lower limit temperature, the compressor is not operated;

wherein when the physical amount reaches the upper limit temperature from a temperature lower than the upper limit temperature, the compressor is operationally controlled by the operation control means.

Claim 20 (New) The refrigerating storage cabinet according to claim 19, characterized in that the compressor is a speed-controllable inverter compressor, and the operation control means comprises:

a physical amount change computing section computing a physical amount reduction degree at the predetermined intervals of operating time;

a target physical amount reduction degree output section providing a target physical amount reduction degree corresponding to the predetermined intervals of operating time;

a comparing section for comparing the physical amount reduction degree to the target physical amount reduction degree at a corresponding operation time; and

a speed control section controlling the inverter compressor so that a rotational speed of the inverter compressor is increased when the comparing section indicates that the physical amount reduction degree is smaller than the target physical amount reduction degree, and decreasing the rotational speed of the inverter compressor when the comparing section indicates that the actual physical amount reduction degree is larger than the target physical amount reduction degree.

Claim 21 (New) The refrigerating storage cabinet according to claim 20, characterized in that the pull down characteristic is a linear function;

wherein the target physical amount reduction degree is a constant value.

Claim 22 (New)   The refrigerating storage cabinet according to claim 21, characterized in that the control-cooling characteristic is a linear function;

wherein the target physical amount reduction degree is a constant value.

Claim 23 (New)   The refrigerating storage cabinet of claim 20, characterized in that the control-cooling characteristic is a linear function.

Claim 24 (New)   The refrigerating storage cabinet of claim 20, characterized in that the control-cooling characteristic is a quadratic function; and

wherein the pull down characteristic is a quadratic function.

Claim 25 (New)   The refrigerating storage cabinet of claim 20, characterized in that the control-cooling characteristic is represented as an exponential function; and

wherein the pull down characteristic is an exponential function.

Claim 26 (New)   The refrigerating storage cabinet of claim 20, further characterized by a reference table in which the target physical amount reduction degrees have been determined for a plurality of target physical amounts and stored in the reference table according to an associated target physical amount;

an appropriate target physical amount reduction degree is retrieved by the target physical amount reduction degree output section from the target reduction table based on a correspondence between the physical amount and the associated target physical amount;

a physical amount change computing section computing a physical amount reduction degree for the physical amount based on the physical amount and a previously measured physical amount;

wherein the physical amount reduction degree and the appropriate target physical amount reduction degree are used as inputs for the comparing section.

Claim 27 (New)   The refrigerating storage cabinet of claim 19, characterized in that the control-cooling characteristic is a quadratic function.

Claim 28 (New)   The refrigerating storage cabinet of claim 19, characterized in that the control-cooling characteristic is represented as an exponential function.

Claim 29 (New)   The refrigerating storage cabinet of claim 20, wherein the pull down cooling zone includes a first pull down zone and a second pull down zone;

wherein the pull down characteristic includes a first pull down characteristic and a second pull down characteristic

wherein the first pull down characteristic is used for the first pull down zone and is a linear function;

wherein the second pull down characteristic is used for the second pull down part and is a quadratic function.

Claim 30 (New)   The refrigerating storage cabinet of claim 17, wherein the storing means stores a plurality of the cooling characteristics;

wherein the operation control means executes an appropriate one of the cooling characteristics based upon the physical amount.

Claim 31 (New)   The refrigerating storage cabinet of claim 18, characterized in that a plurality of the pull down cooling characteristics is provided;

wherein an appropriate one of the plurality of the pull down cooling characteristics is executed based on the physical amount.

Claim 32 (New)   The refrigerating storage cabinet of claim 31, wherein the appropriate one of the plurality of the pull down cooling characteristics is executed based upon a zone of the physical amount

Claim 33 (New)   The refrigerating storage cabinet of claim 31, wherein the appropriate one of the plurality of the pull down cooling characteristics includes a small temperature drop degree when a difference between the physical amount and the target physical amount is less than a predetermined value; and

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wherein the appropriate one of the plurality of the pull down cooling characteristics includes a large temperature drop degree when the difference between the physical amount and the target physical amount is greater than or equal to the predetermined amount.

Claim 34 (New)   The refrigerating storage cabinet of claim 31, characterized in that the plurality of the pull down cooling characteristics includes an auxiliary cooling characteristic comprising a temperature curve in which a convergence temperature remains at a temperature higher by an auxiliary predetermined value than the set internal temperature;

wherein the auxiliary cooling characteristic is selected as the appropriate one of the plurality of the pull down cooling characteristics when a difference between the physical amount and an evaporation temperature of the evaporator is at or above a predetermined auxiliary temperature value or when the physical amount is higher than the target physical amount by a predetermined auxiliary temperature value.

Claim 35 (New)   A refrigerating storage cabinet for refrigerating an inner atmosphere and including a refrigeration unit comprising a compressor and an evaporator, in which the refrigerating storage cabinet comprises:

a storing means for storing a plurality of cooling characteristics comprising a target physical amount as a function of operating time;

a physical amount sensor able to detect a physical amount, corresponding to the target physical amount, at predetermined intervals of operating time;

wherein the compressor comprises a plurality of performance levels;

an operation control means for controlling the compressor by selecting an appropriate one of the plurality of performance levels based upon a relationship between the physical amount and the target physical amount for a corresponding operating time;

wherein the operation control means selects an appropriate one of the plurality of cooling characteristics based upon the physical amount;

wherein the target physical amount is determined from the appropriate one of the plurality of cooling characteristics.

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Claim 36 (New)   The refrigerating storage cabinet of claim 35, wherein:

the physical amount and the target physical amount are temperatures;

wherein the physical amount is the temperature of the inner atmosphere;

wherein the compressor is controlled by the operation control means in which the cooling characteristic is a pull down characteristic while the physical amount is in a temperature range from above a high temperature to near a set temperature;

wherein the high temperature is higher than the set temperature by more than a predetermined value;

an upper limit temperature that is higher by the predetermined value than a set temperature;

a lower limit temperature that is lower by the predetermined value than the set temperature;

a control-cooling zone between and including the upper limit temperature to the lower limit temperature;

wherein when the physical amount is in the control-cooling zone, the cooling characteristic is a control-cooling characteristic;

wherein the compressor is controlled by the operation control means wherein the control characteristic is a control-cooling characteristic when the physical amount is in the control-cooling zone from the upper limit temperature to the lower limit temperature;

wherein when the physical amount reaches the lower limit temperature from a temperature higher than the lower limit temperature, the compressor is not operated;

wherein when the physical amount reaches the upper limit temperature from a temperature lower than the upper limit temperature, the compressor is operationally controlled by the operation control means.

AMENDMENTS TO THE ABSTRACT

Please replace the original abstract with the attached marked up abstract.

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